PATENT
Attorney's Docket No. 0023-0118

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of	)	**Mail Stop: Appeal Brief - Patents**
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Der-Hwa GAN et al.	)	Group Art Unit: 2616
	)	
Application No.: 09/354,640	)	Examiner: C. Ho
	)	
Filed: July 15, 1999	)	
	)	
For: METHOD AND APPARATUS FOR FAST REROUTE IN A CONNECTION-ORIENTED NETWORK	)	

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APPEAL BRIEF

This Appeal Brief is submitted in response to the Office Action, dated February 28, 2007, which re-opened prosecution of the present application, and in support of the Notice of Appeal, filed May 29, 2007.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Juniper Networks, Inc.

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

Appellants are unaware of any related appeals, interferences or judicial proceedings.

III. STATUS OF CLAIMS

Claims 1-4, 6, 8-21, and 24 are pending in this application. Claims 5, 7, 22, and 23 have been canceled without prejudice or disclaimer.

Claims 1-4, 6, 8-21, and 24 were rejected in the Office Action, dated February 28, 2007, and are the subject of the present appeal. These claims are reproduced in the Claim Appendix of this Appeal Brief.

IV. STATUS OF AMENDMENTS

No amendment was filed subsequent to the Office Action, dated February 28, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In the paragraphs that follow, a concise explanation of the independent claims, each dependent claim argued separately, and the claims reciting means-plus-function or step-plus-function language that are involved in this appeal will be provided by referring, in parenthesis, to examples of where support can be found in the specification and drawings.

Claim 1 recites a network (140, Fig. 1a) for forwarding packets from a source device (100, Fig. 1a) to a destination device (110, Fig. 1a), said network including a plurality of network elements including a plurality of nodes (130, Fig. 1a) and connecting links (150, Fig. 1a), the plurality of nodes including at least one alternative-route-enabled node (201, Fig. 2a) and at least

one non-alternative-route-enabled node (203, Fig. 2a), wherein the at least one non-alternative-route-enabled node comprises a storage space to store an initial route from the source device to the destination device (Fig. 6b; p. 11, lines 16-20; p. 8, lines 11-12); a mechanism to detect failure in a downstream network element in the initial route (315, Fig. 3a; p. 8, line 27, to p. 9, line 2); and a forwarder to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node, the failure message causing the alternative-route-enabled node to begin forwarding packets on an alternative route (322, 324, Fig. 3a; p. 9, lines 2-9).

Claim 6 recites that the mechanism to detect failure sends communication packets to downstream nodes at regular intervals (315, Fig. 3a; p. 8, lines 26-30).

Claim 8 recites a method for forwarding packets from a source device (100, Fig. 1a) to a destination device (110, Fig. 1a) in a network of interconnected elements including nodes (130, Fig. 1a) and links (150, Fig. 1a), comprising determining an initial route, the initial route including at least one alternative-route enabled node and at least one non-alternative-route-enabled node, the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device (330, Fig. 3b; p. 8, lines 4-12); determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements (308, Fig. 3a; 505-525, Fig. 5a; p. 8, lines 19-24, p. 10, lines 7-15); forwarding packets on the initial route (310, Fig. 3a; p. 8, lines 24-25); detecting a failed element (315, Fig. 3a; p. 8, lines 27-30); and

automatically forwarding packets on the alternative route without communicating with either the source or the destination (322, 320, 324, Fig. 3a; p. 8, line 30, to p. 9, line 9).

Claim 9 recites that the determining the initial route further comprises determining a short path from the destination device to the source device within the network (410, Fig. 4; p. 9, lines 14-19); refining the path according to administrative constraints (415, 420, Fig. 4; p. 9, lines 19-29); and establishing the path as the initial route (425, Fig. 4; p. 9, lines 29-30).

Claim 10 recites that the refining the path comprises rejecting the path exceeding bandwidth allocation and hop limit (p. 9, lines 22-30).

Claim 11 recites that the determining the alternative route further comprises determining a shortest route from a node preceding the failed element to the destination device within the network (p. 8, lines 13-14; p. 9, lines 29-30); refining the route to exclude the failed element on the initial route (520, Fig. 5a; p. 10, lines 12-14); and establishing the alternative route for forwarding packets (522, Fig. 5a; p. 10, lines 14-15).

Claim 13 recites that the determining the alternative route comprises reserving bandwidth available on the initial route (p. 4, lines 13-21; pg. 10, lines 7-30); generating the alternative route by invoking a routing protocol (p. 4, lines 13-21; p. 10, lines 14-15); refining the alternative route by excluding the failed element (p. 4, lines 13-21; p. 10, lines 11-14); and establishing the alternative route (pg. 4, lines 13-21; p. 10, lines 14-15).

Claim 14 recites a method for forwarding packets from a source device (100, Fig. 1a) to a destination device (110, Fig. 1a) in a network of interconnected elements including nodes (130, Fig. 1a) and links (150, Fig. 1a), comprising determining an initial route by determining a short path from the destination device to the source device within the network (305, Fig. 3b; 410, Fig.

4; p. 9, lines 15-17), refining the path according to administrative constraints (415, 420, Fig. 4; p. 9, lines 19-29), and establishing the path as the initial route (425, Fig. 4; p. 9, lines 29-30), the initial route being prioritized to establish a hierarchy for preemption in routing network traffic (p. 10, lines 1-6); determining an alternative route (308, Fig. 3a; p. 8, lines 19-21); forwarding packets on the initial route (310, Fig. 3a; p. 8, lines 24-25); detecting a failed element (315, Fig. 3a; p. 8, lines 27-29); and automatically forwarding packets on the alternative route without communicating with either the source or the destination (322, 320, 324, Fig. 3a; p. 8, line 30, to p, 9, line 9).

Claim 15 recites that the determining the alternative route comprises checking bandwidth allocation (540, 545, Fig. 5; p. 4, lines 13-21; p. 8, lines 7-18; p. 10, line 22, to p. 11, line 6).

Claim 16 recites that the checking bandwidth allocation comprises dynamically balancing capacity of nodes and links (540, 545, Fig. 5; p. 4, lines 13-21; p. 8, lines 7-18; p. 10, line 22, to p. 11, line 6).

Claim 17 recites that the determining the alternative route comprises reserving bandwidth available on the initial route (p. 4, lines 13-21; p. 10, lines 7-30); identifying a plurality of nodes associated with the failed element according to network configuration information (p. 4, lines 13-21; p. 10, line 11); generating the alternative route excluding the failed element and the plurality of nodes (p. 4, lines 13-21; p. 10, lines 11-14); and establishing the alternative route (p. 4, lines 13-21; p. 10, lines 14-15).

Claim 18 recites a method for locally rerouting packets traveling on an established route when a node in a network of interconnected nodes fails, the method comprising computing, at select intermediary nodes along the established route, an alternative route leading from the select

intermediary node to the destination device of the established route (308, Fig. 3a; p. 8, lines 19-21); storing, at each of the select intermediary nodes, the alternative route (p. 8, lines 22-24); determining locally that the established route has failed (315, Fig. 3a; p. 8, lines 27-29); and automatically forwarding packets on the alternative route (322, 320, Fig. 3a; p. 8, line 30, to p. 9, line 9).

Claim 19 recites that computing the alternative route comprises reserving bandwidth available on the established route (p. 4, lines 13-21; p. 10, lines 7-30); identifying a plurality of nodes associated with the failed node according to network configuration information (p. 4, lines 13-21; p. 10, line 11); generating the alternative route excluding the failed node and the plurality of nodes (p. 4, lines 13-21; p. 10, lines 11-14); and establishing the alternative route (p. 4, lines 13-21; p. 10, lines 14-15).

Claim 20 recites that computing the alternative route further comprises locating a set of established routes with a same destination device and same administrative constraints as the established route (540, 545, Fig. 5b; p. 11, lines 1-4); finding a common node, downstream from the failed node, after which the set of established routes and the established route utilize the same network elements (550, Fig. 5b; p. 11, lines 4-5); establishing a new route from the common node to the destination device (555, Fig. 5; p. 11, lines 5-6); and incorporating the new route into the alternative route (p. 11, lines 5-6).

Claim 24 recites a network for forwarding packets from a source device (100, Fig. 1a) to a destination device (110, Fig. 1a) and including a plurality of intermediate network nodes (130, Fig. 1a), the plurality of intermediate network nodes comprising at least one first node (201, Fig. 2a) configured to store an initial route from the source device to the destination device and at

least one alternative route from the source device to the destination device (p. 8, lines 11-12 and 19-24), detect a failure in a downstream network node in the initial route (315, Fig. 3a; p. 8, lines 27-29), and automatically forward a packet to a node on one of the at least one alternative route in response to detecting the failure (322, 320, Fig. 3a; p. 8, line 30, to p. 9, line 9); and at least one second node (203, Fig. 2a) configured to store the initial route (p. 8, lines 11-12), detect a failure in a downstream network node in the initial route (315, Fig. 3a; p. 8, lines 27-29), and forward a failure message to an upstream first node in response to detecting the failure, the failure message causing the upstream first node to automatically forward a packet to a node on one of the at least one alternative route (322, 324, Fig. 3a; p. 8, line 30, to p. 9, line 9).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1, 4, and 24 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin et al. (U.S. Patent No. 6,813,242) in view of McAllister et al. (U.S. Patent No. 6,560,218).

B. Claims 2 and 3 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin et al. in view of McAllister et al., and further in view of Goyal et al. (U.S. Patent No. 6,466,985).

C. Claim 6 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin et al. in view of McAllister et al., and further in view of Gnauck et al. (U.S. Reg. No. H2075).

D. Claim 8 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin et al. in view of Hsing et al. (U.S. Patent No. 6,167,025).

E. Claims 9-12 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin

et al. in view of Hsing et al., and further in view of Saleh (U.S. Patent No. 7,002,917).

F. Claims 13 and 17 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin et al. in view of Hsing et al., and further in view of Hahne et al. (U.S. Patent No. 6,538,416).

G. Claims 15 and 16 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin et al. in view of Hsing et al., and further in view of Vikberg et al. (U.S. Patent Application Publication No. 2003/0053463).

H. Claim 14 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Haskin et al. in view of Saleh.

I. Claim 18 stands rejected under 35 U.S.C. § 103(a) as unpatentable over McAllister et al. in view of Saleh.

J. Claim 19 stands rejected under 35 U.S.C. § 103(a) as unpatentable over McAllister et al. in view of Saleh, and further in view of Hahne et al.

K. Claim 20 stands rejected under 35 U.S.C. § 103(a) as unpatentable over McAllister et al. in view of Saleh, and further in view of Hahne et al., and still further in view of Azuma et al. (U.S. Patent No. 6,430,150).

L. Claim 21 stands rejected under 35 U.S.C. § 103(a) as unpatentable over McAllister et al. in view of Saleh, and further in view of Hsing et al.

VII. ARGUMENTS

A. The rejection of claims 1, 4, and 24 under 35 U.S.C. § 103(a) based on Haskin et al. and McAllister et al. should be reversed.

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed

invention always rests upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992). In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a factual basis to support the conclusion of obviousness. In re Warner, 379 F.2d 1011, 154 U.S.P.Q. 173 (CCPA 1967). Based upon the objective evidence of record, the Examiner is required to make the factual inquiries mandated by Graham v. John Deere Co., 86 S.Ct. 684, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007). The Examiner is also required to explain how and why one having ordinary skill in the art would have been realistically motivated to modify an applied reference and/or combine applied references to arrive at the claimed invention. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

1. Claims 1 and 4.

Independent claim 1 is directed to a network for forwarding packets from a source device to a destination device, where the network includes a plurality of network elements including a plurality of nodes and connecting links. The plurality of nodes includes at least one alternative-route-enabled node and at least one non-alternative-route-enabled node. The at least one non-alternative-route-enabled node includes a storage space to store an initial route from the source device to the destination device; a mechanism to detect failure in a downstream network element in the initial route; and a forwarder to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node, where the failure message causes the alternative-route-enabled node to begin forwarding packets on an alternative route. Haskin et al. and McAllister et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, Haskin et al. and McAllister et al. do not disclose or suggest a plurality of nodes including at least one alternative-route-enabled node and at least one non-alternative-route-enabled node. The Examiner relies on element 1 of Haskin et al. as allegedly corresponding to at least one alternative-route-enabled node and on element 3 or 5 of Haskin et al. as allegedly corresponding to at least one non-alternative-route-enabled node (Office Action, p. 3). Appellants respectfully disagree with the Examiner's interpretation of the disclosure of Haskin et al.

Elements 1, 3, 5 of Haskin et al. correspond to switches. As clearly illustrated in Fig. 2 of Haskin et al., a primary path (or route), which includes paths 13, 35, and 57, has been established from switch 1 to switch 7. Moreover, Fig. 2 of Haskin et al. specifically discloses that an alternative path, which includes paths 53, 31, 12, 24, 46, and 67, has also been established to switch 7. As illustrated, switch 1 includes a primary path 13 and an alternative path 12 (see, for example, Fig. 2; col. 3, line 61, to col. 4, line 5). Similarly, switch 3 includes a primary path 35 and an alternative path 31 (see, for example, Fig. 2; col. 3, line 61, to col. 4, line 5) and switch 5 includes a primary path 57 and an alternative path 53 (see, for example, Fig. 2; col. 3, line 61, to col. 4, line 5). Thus, a primary path and an alternative path have been computed for each of Haskin et al.'s switches 1, 3, and 5.

In addition, Haskin et al. discloses that the alternative paths are stored at switches 1, 3, and 5. For example, Haskin et al. discloses, at col. 4, lines 34-45, that as soon as a link failure is detected, the switch (e.g., switch 3 or 5) reroutes incoming packet traffic by linking the upstream portion of the primary path to the downstream portion of the alternative path. Thus, Haskin et al. discloses storing an alternative path at each of Haskin et al.'s switches 1, 3, and 5.

As set forth in Appellants' specification, "alternative-route-enabled" means that alternative routes (or paths) are pre-calculated and stored along an initial route (see, for example, p. 7, lines 18-21). In accordance with this definition, Appellants submit that Haskin et al.'s switches 1, 3, and 5 are all alternative-route-enabled nodes. As set forth above, Haskin et al. discloses that switches 1, 3, and 5 are along an initial (or primary) path and that an alternative path is computed for each of Haskin et al.'s switches 1, 3, and 5. Moreover, Haskin et al. appears to disclose storing an alternative path at each of Haskin et al.'s switches 1, 3, and 5, since Haskin et al. discloses the ability of switches 1, 3, and 5 to route traffic to the alternative path upon detection of a failure. Thus, Haskin et al.'s switches 1, 3, and 5 are all alternative-route-enabled nodes.

The Examiner's allegation that switches 3 and 5 are non-alternative-route-enabled nodes is not supported by the Haskin et al. disclosure. Contrary to the Examiner's allegations, Haskin et al. does not disclose or suggest a non-alternative-route-enabled node, which includes a storage space to store an initial route from the source device to the destination device; a mechanism to detect failure in a downstream network element in the initial route; and a forwarder to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node, where the failure message causes the alternative-route-enabled node to begin forwarding packets on an alternative route, as recited in claim 1.

The disclosure of McAllister et al. does not remedy the above-deficiency in the disclosure of Haskin et al. That is, McAllister et al. does not disclose or suggest a non-alternative-route-enabled node, as recited in claim 1.

Since Haskin et al. and McAllister et al. do not disclose or suggest a non-alternative-

route-enabled node, Haskin et al. and McAllister et al. cannot disclose or suggest a non-alternative-route-enabled node that includes a storage space to store an initial route from a source device to a destination device, as also recited in claim 1. The Examiner admits that Haskin et al. does not disclose this feature (Office Action, p. 3). The Examiner relies on col. 2, lines 30-34 and 38-45, of McAllister et al. for allegedly disclosing this feature (Office Action, pp. 3-4). Appellants respectfully disagree with the Examiner's interpretation of the disclosure of McAllister et al.

At col. 2, lines 30-45, McAllister et al. discloses:

> … network nodes, each network node having a local static routing tables providing next hop routing information to adjacent nodes, characterized in that said routing tables define a primary route and an alternate route to adjacent nodes; a network node receives a setup message for the call and searches its routing table for corresponding routing information; the node, based on the corresponding routing information, attempts to forward the setup message on the primary route; if the primary route is not usable due to congestion or physical failure, the node then attempts to forward the setup message on the alternate route; and if the alternate route is the same route on which the setup message is received, the node cranks the call back to a preceding node which either forwards the setup message over the alternate route defined in that node's routing table or again cranks the call back to a further preceding node.

This section of McAllister et al. discloses that each network node has a local static routing table that provides next hop routing information that defines a primary route and an alternate route to adjacent nodes. This section of McAllister et al. does not disclose or suggest a non-alternative-route-enabled node. Moreover, this section of McAllister et al. does not disclose or suggest storing an initial route from a source device to a destination device. Instead, this section of McAllister et al. specifically discloses that the local static routing table defines a primary route and an alternative route to adjacent nodes. Since this section of McAllister et al. does not disclose or suggest a non-alternative-route-enabled node or storing an initial route from a source

device to a destination device, this section of McAllister et al. cannot disclose or suggest a non-alternative-route-enabled node that includes a storage space to store an initial route from a source device to a destination device, as also recited in claim 1.

Even assuming, for the sake of argument, that the disclosure of McAllister et al. can reasonably be construed to disclose a non-alternative-enabled node that includes a storage space to store an initial route from a source device to a destination device, as recited in claim 1 (a point that Appellants do not concede for at least the reasons given above), Appellants submit that one skilled in the art would not have been motivated to incorporate this alleged teaching of McAllister et al. into the Haskin et al. system, absent impermissible hindsight.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the system of Haskin with the teaching of McAllister to provide a storage space to store an initial route from a source device to a destination device in order to reduce the probability of packet loss in a network

(Office Action, p. 4). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Moreover, the Examiner does not explain why providing a storage space to store an initial route from a source device to a destination device into the Haskin et al. system would reduce the probability of packet loss. Appellants submit that the Examiner's

purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 1 under 35 U.S.C. § 103(a) based on Haskin et al. and McAllister et al. is improper. Accordingly, Appellants request that the rejection of claim 1 be reversed.

Claim 4 depends from claim 1. Therefore, Appellants respectfully request that the rejection of claim 4 under 35 U.S.C. § 103(a) based on Haskin et al. and McAllister et al. be reversed for at least the reasons given above with respect to claim 1.

2. Claim 24.

Independent claim 24 is directed to a network for forwarding packets from a source device to a destination device and including a plurality of intermediate network nodes. The plurality of intermediate network nodes includes at least one first node configured to store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device, detect a failure in a downstream network node in the initial route, and automatically forward a packet to a node on one of the at least one alternative route in response to detecting the failure; and at least one second node configured to store the initial route, detect a failure in a downstream network node in the initial route, and forward a failure message to an upstream first node in response to detecting the failure, the failure message causing the upstream first node to automatically forward a packet to a node on one of the at least one alternative route. Haskin et al. and McAllister et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, Haskin et al. and McAllister et al. do not disclose or suggest at least one

first node and at least one second node that store an initial route from a source device to a destination device. The Examiner admits that Haskin et al. does not disclose these features (Office Action, p. 5). The Examiner relies on McAllister et al.'s node A as allegedly corresponding to the recited at least one first node, node B as allegedly corresponding to the recited at least one second node, and on table 11 as corresponding to storage locations in nodes A and B that store an initial route (Office Action, p. 5). Moreover, the Examiner relies on col. 3, lines 1-2, of McAllister et al. for allegedly disclosing the above features of claim 24 (Office Action, p. 5). Appellants respectfully disagree with the Examiner's interpretation of McAllister et al.

McAllister et al. discloses that table 11 is a local routing table (col. 2, lines 63-66). Moreover, McAllister et al. specifically discloses that local routing table 11 stores routes to adjacent nodes. McAllister et al. in no way discloses or suggests that local routing table 11 stores an initial route from a source device to a destination device, as would be required by claim 24 based on the Examiner's interpretation of McAllister et al. At most, McAllister et al.'s local routing table 11 can be said to disclose a portion (less than the total) of an initial route from a source device to a destination device. Storing a portion (less than the total) of an initial route is not the same as storing an initial route.

At col. 2, line 66, to col. 3, line 2, McAllister et al. discloses:

> The routing tables 11 contain information pertaining to a primary route and an alternate route to use in the event that there is a failure or congestion on the primary route.

As indicated above, McAllister et al. specifically discloses that local routing table 11 stores routes to adjacent nodes. McAllister et al. in no way discloses or suggests that local routing table

11 stores an initial route from a source device to a destination device, as would be required by claim 24 based on the Examiner's interpretation of McAllister et al.

Even assuming, for the sake of argument, that the disclosure of McAllister et al. can reasonably be construed to disclose a first node and a second node that store an initial route from a source device to a destination device, as recited in claim 24 (a point that Appellants do not concede for at least the reasons given above), Appellants submit that one skilled in the art would not have been motivated to incorporate this alleged teaching of McAllister et al. into the Haskin et al. system, absent impermissible hindsight.

With respect to motivation, the Examiner alleges

> it would have been obvious … to modify the system of Haskin with the teaching of McAllister to include at least one first node configured to: store an initial route from the source device to the destination device; and at least one second node configured to: store the initial route in order to reduce the probability of packet loss in a network

(Office Action, p. 5). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

Moreover, the Examiner does not explain why incorporating at least one first node and at

least one second node that store an initial route from a source device to a destination device into the Haskin et al. system would reduce the probability of packet loss. Appellants submit that the Examiner's motivation is impermissibly based on hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 24 under 35 U.S.C. § 103(a) based on Haskin et al. and McAllister et al. is improper. Accordingly, Appellants request that the rejection of claim 24 be reversed.

B. The rejection of claims 2 and 3 under 35 U.S.C. § 103(a) based on Haskin et al., McAllister et al., and Goyal et al. should be reversed.

1. Claims 2 and 3.

Claims 2 and 3 depend from claim 1. The disclosure of Goyal et al. does not remedy the deficiencies in the disclosures of Haskin et al. and McAllister et al. set forth above with respect to claim 1. Therefore, claims 2 and 3 are patentable over Haskin et al., McAllister et al., and Goyal et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

C. The rejection of claim 6 under 35 U.S.C. § 103(a) based on Haskin et al., McAllister et al., and Gnauck et al. should be reversed.

1. Claim 6.

Claim 6 depends from claim 1. The disclosure of Gnauck et al. does not remedy the deficiencies in the disclosures of Haskin et al. and McAllister et al. set forth above with respect to claim 1. Therefore, claim 6 is patentable over Haskin et al., McAllister et al., and Gnauck et al., whether taken alone or in any reasonable combination, for at least the reasons given above

with respect to claim 1. Moreover, this claim is patentable over Haskin et al., McAllister et al., and Gnauck et al. for reasons of its own.

Claim 6 recites that the mechanism to detect failure sends communication packets to downstream nodes at regular intervals. The Examiner admits that Haskin et al. and McAllister et al. do not disclose this feature (Office Action, p. 8). The Examiner relies on col. 14, lines 62-65, of Gnauck et al. for allegedly disclosing the feature of claim 6 (Office Action, pp. 8-9). Appellants respectfully disagree with the Examiner's interpretation of the disclosure of Gnauck et al.

At col. 14, lines 61-65, Gnauck et al. discloses:

> Electronics 1370 are adapted to detect a failure in the connection between ONU 1300 and the COT that includes the optical fiber selected by optical switch 1317. For example, the COT could send a predetermined signal to ONU 1300 at regular intervals.

This section of Gnauck et al. discloses that a Central Office Transceiver (COT) could send a predetermined signal to an Optical Network Unit (ONU) 1300 at regular intervals. Gnauck et al. further discloses that if the signal is not received, electronics 1370 within ONU 1300 could presume that a failure has occurred (col. 14, lines 65-67). Gnauck et al. does not disclose or suggest that ONU 1300 (or any other device) is a non-alternative-route-enabled node. Thus, Gnauck et al. cannot disclose or suggest a non-alternative-route-enabled that includes a mechanism to detect failure in a downstream network element that sends communication packets to downstream nodes at regular intervals, as recited in claim 6.

Even assuming, for the sake of argument, that that the above section of Gnauck et al. can reasonably be construed to disclose a non-alternative-route-enabled node that includes a mechanism to detect failure in a downstream network element that sends communication packets

to downstream nodes at regular intervals (a point that Appellants do not concede), Appellants submit that one skilled in the art at the time of Appellants' invention would not have been motivated to incorporate this alleged teaching of Gnauck et al. into the Haskin et al. and McAllister et al. systems, absent impermissible hindsight. With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (Haskin – McAllister) with Gnauck to provide the mechanism to detect failure sends communication packets to downstream nodes at regular intervals in order to find an alternative route with sufficient quality of service characteristic in the vent of a network failure

(Office Action, p. 9). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

Moreover, the Examiner does not explain why incorporating a mechanism to detect failure that sends communication packets to downstream nodes at regular intervals into the Haskin et al./McAllister et al. systems would allow for alternative routes with sufficient quality of service characteristics to be found, as the Examiner alleges. The Examiner provides no evidence or explanation to support this conclusory allegation. Appellants submit that the

Examiner's motivation is impermissibly based on hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 6 under 35 U.S.C. § 103(a) based on Haskin et al., McAllister et al., and Gnauck et al. is improper. Accordingly, Appellants request that the rejection be reversed.

D. The rejection of claim 8 under 35 U.S.C. § 103(a) based on Haskin et al. and Hsing et al. should be reversed.

1. Claim 8.

Independent claim 8 is directed to a method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links. The method includes determining an initial route, where the initial route includes at least one alternative-route enabled node and at least one non-alternative-route-enabled node, the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device; determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements; forwarding packets on the initial route; detecting a failed element; and automatically forwarding packets on the alternative route without communicating with either the source or the destination. Haskin et al. and Hsing et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, Haskin et al. and Hsing et al. do not disclose or suggest at least one alternative-route-enabled node and at least one non-alternative-route-enabled node. The

Examiner appears to rely on Haskin et al. for allegedly disclosing these features (Office Action, p. 9, where the Examiner alleges that Haskin et al. discloses an "initial route including at least one alternative route enable node (5) and at least one alternative route enable node"). Appellants note that with respect to claim 1, the Examiner relies on element 1 of Haskin et al. as allegedly corresponding to at least one alternative-route-enabled node and on element 3 or 5 of Haskin et al. as allegedly corresponding to at least one non-alternative-route-enabled node (Office Action, p. 3). Appellants respectfully disagree with the Examiner's interpretation of the disclosure of Haskin et al.

Elements 1, 3, 5 of Haskin et al. correspond to switches. As clearly illustrated in Fig. 2 of Haskin et al., a primary path (or route), which includes paths 13, 35, and 57, has been established from switch 1 to switch 7. Moreover, Fig. 2 of Haskin et al. specifically discloses that an alternative path, which includes paths 53, 31, 12, 24, 46, and 67, has also been established to switch 7. As illustrated, switch 1 includes a primary path 13 and an alternative path 12 (see, for example, Fig. 2; col. 3, line 61, to col. 4, line 5). Similarly, switch 3 includes a primary path 35 and an alternative path 31 (see, for example, Fig. 2; col. 3, line 61, to col. 4, line 5) and switch 5 includes a primary path 57 and an alternative path 53 (see, for example, Fig. 2; col. 3, line 61, to col. 4, line 5). Thus, a primary path and an alternative path have been computed for each of Haskin et al.'s switches 1, 3, and 5.

In addition, Haskin et al. discloses that the alternative paths are stored at switches 1, 3, and 5. For example, Haskin et al. discloses, at col. 4, lines 34-45, that as soon as a link failure is detected, the switch (e.g., switch 3 or 5) reroutes incoming packet traffic by linking the upstream portion of the primary path to the downstream portion of the alternative path. Thus, Haskin et al.

discloses storing an alternative path at each of Haskin et al.'s switches 1, 3, and 5.

As set forth in Appellants' specification, "alternative-route-enabled" means that alternative routes (or paths) are pre-calculated and stored along an initial route (see, for example, p. 7, lines 18-21). Based on this definition, Appellants submit that Haskin et al.'s switches 1, 3, and 5 are all alternative-route-enabled nodes. As set forth above, Haskin et al. discloses that switches 1, 3, and 5 are along an initial (or primary) path and that an alternative path is computed for each of Haskin et al.'s switches 1, 3, and 5. Moreover, Haskin et al. appears to disclose storing an alternative path at each of Haskin et al.'s switches 1, 3, and 5, since Haskin et al. discloses the ability of switches 1, 3, and 5 to route traffic to the alternative path upon detection of a failure. Thus, Haskin et al.'s switches 1, 3, and 5 are all alternative-route-enabled nodes.

The Examiner allegation that switches 3 and 5 are non-alternative-route-enabled nodes is not supported by the Haskin et al. disclosure. Contrary to the Examiner's allegations, Haskin et al. does not disclose or suggest determining an initial route, where the initial route includes at least one alternative-route enabled node and at least one non-alternative-route-enabled node, the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device, as recited in claim 8.

The disclosure of Hsing et al. does not remedy the above-deficiency in the disclosure of Haskin et al. That is, Hsing et al. does not disclose or suggest a non-alternative-route-enabled node, as recited in claim 8.

Since Haskin et al. and Hsing et al. do not disclose or suggest a non-alternative-route-enabled node, Haskin et al. and Hsing et al. cannot disclose or suggest determining an initial

route, where the initial route includes at least one alternative-route-enabled node and at least one non-alternative-route-enabled node, as recited in claim 8.

Moreover, Haskin et al. and Hsing et al. cannot further disclose or suggest that the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node store an initial route from a source device to a destination device, as also recited in claim 8. The Examiner admits that Haskin et al. does not disclose this feature (Office Action, p. 10). The Examiner relies on Figs. 12, 3A, 3B, 3C, and 16 and col. 14, lines 33-43, of Hsing et al. for allegedly disclosing the above feature of claim 8 (Office Action, p. 10). Appellants respectfully disagree with the Examiner's interpretation of Hsing et al.

Fig. 12 of Hsing et al. depicts a situation where an ATM switch 116 has failed and another ATM switch 118 reroutes traffic on an alternative path (toward ATM switch 120). This figure of Hsing et al. in no way discloses or suggests at least one alternative-route-enabled node and at least one non-alternative-route-enabled node that store an initial route from a source device to a destination device, as recited in claim 8.

Figs. 3A-3C of Hsing et al. depict routing tables for switches 110, 118, and 110, respectively. As indicated, the routing tables include information identifying a next hop along a primary path and one or more alternative paths. Appellants submit that since alternative routes (or paths) are pre-calculated and stored for switches 110 and 118, these switches would be considered to be alternative-route-enabled nodes. These figures of Hsing et al. do not disclose or suggest a non-alternative-route-enabled node. Thus, these figures of Hsing et al. cannot disclose or suggest at least one alternative-route-enabled node and at least one non-alternative-route-enabled node that store an initial route from a source device to a destination device, as recited in

claim 8.

Moreover, even if one of Hsing et al.'s switches 110 and 118 could reasonably be construed as an non-alternative-route-enabled node (a point that Appellants do not concede), Appellants submit that these figures of Hsing et al. merely disclose information identifying a next hop to along a primary path and an alternative path. These figures of Hsing et al. do not disclose or suggest at least one alternative-route-enabled node and at least one non-alternative-route-enabled node that store an initial route from a source device to a destination device, as recited in claim 8.

Fig. 16 of Hsing et al. depicts a crank-back message handling routine. This figure of Hsing et al. does not disclose or suggest at least one alternative-route-enabled node and at least one non-alternative-route-enabled node that store an initial route from a source device to a destination device, as recited in claim 8.

At col. 14, lines 33-43, Hsing et al. discloses:

> The action taken by the switch 200 detecting a fault is a function of whether the switch is located upstream to a fault in which case the switch is an upstream neighboring switch or downstream in which case the switch is a downstream neighboring switch. Upstream neighboring switches are generally responsible for initiating the process of establishing an alternative path to the destination device while downstream neighboring switches are generally responsible for initiating the release of network capacity reserved by switches which are no longer used as part of the path to communicate information between the source and destination devices.

This section of Hsing et al. discloses that upstream neighboring switches are generally responsible for initiating the process of establishing an alternative path to the destination device. This section of Hsing et al. does not disclose or suggest at least one alternative-route-enabled node and at least one non-alternative-route-enabled node that store an initial route from a source

device to a destination device, as recited in claim 8. In fact, this section of Hsing et al. does not even relate to a non-alternative-route-enabled node.

Haskin et al. and Hsing et al. do not further disclose or suggest determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements, as also recited in claim 8. The Examiner admits that Haskin et al. does not disclose these features (Office Action, p. 10). The Examiner relies on col. 14, lines 33-43, of Hsing et al. for allegedly disclosing the above features of claim 8 (Office Action, p. 10). Appellants respectfully disagree with the Examiner's interpretation of Hsing et al.

Col. 14, lines 33-43, of Hsing et al. is reproduced above. This section of Hsing et al. discloses that upstream neighboring switches are generally responsible for initiating the process of establishing an alternative path to the destination device. This section of Hsing et al. does not disclose or suggest determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements, as recited in claim 8. Since all switches in Hsing et al. appear to be alternative-route-enabled nodes, there would be no need to identify the at least one alternative-route-enabled node in the initial route in Hsing et al.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the system of Haskin with the teach of Hsing to provide the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device; determining an alternative route by identifying

> the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements; forwarding packets on the initial route in order to reduce the probability of packet loss in a network

(Office Action, p. 11). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 8 under 35 U.S.C. § 103(a) based on Haskin et al. and Hsing et al. is improper. Accordingly, Appellants request that the rejection of claim 8 be reversed.

E. The rejection of claims 9-12 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Saleh should be reversed.

1. Claim 9.

Claim 9 depends from claim 8. The disclosure of Saleh does not remedy the deficiencies in the disclosures of Haskin et al. and Hsing et al. set forth above with respect to claim 8. Therefore, claim 9 is patentable over Haskin et al., Hsing et al., and Saleh, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8.

Moreover, this claim is patentable over Haskin et al., Hsing et al., and Saleh for reasons of its own.

Claim 9 recites that the determining the initial route includes determining a short path from the destination device to the source device within the network; refining the path according to administrative constraints; and establishing the path as the initial route. The Examiner admits that Haskin et al. and Hsing et al. do not disclose these features (Office Action, p. 12). The Examiner relies on col. 27, lines 1-30, of Saleh for allegedly disclosing the features of claim 9 (Office Action, p. 12). Appellants respectfully disagree with the Examiner's interpretation of Saleh.

At col. 27, lines 1-30, Saleh discloses in part:

> Path Selection
>
> Paths are computed using what is referred to herein as a QoS-based shortest-path first (QSPF) technique. This may be done, for example, during the provisioning or the restoration of VPs. The path selection process relies on configured metrics and an up-to-date view of network topology to find the shortest paths for configured VPs.

This section of Saleh discloses the use of a Quality of Service (QoS) based shortest-path first (QSPF) technique for computing a path that relies on configured metrics and an up-to-date view of network topology. This section of Saleh also provides two tables that identify configured virtual paths (VPs) and initial paths, respectively. This section of Saleh is unrelated to refining a determined path. Thus, this section of Saleh cannot disclose or suggest determining an initial route that includes determining a short path from the destination device to the source device within the network; refining the path according to administrative constraints; and establishing the path as the initial route, as recited in claim 9.

Even assuming, for the sake of argument, that that the above section of Saleh can reasonably be construed to disclose determining a short path from the destination device to the source device within the network; refining the path according to administrative constraints; and establishing the path as the initial route (a point that Appellants do not concede), Appellants submit that one skilled in the art at the time of Appellants' invention would not have been motivated to incorporate this alleged teaching of Saleh into the Haskin et al. and Hsing et al. systems, absent impermissible hindsight. With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (Haskin – Hsing) with the teaching of Saleh to determine the initial route further comprises: determining a short path from the destination device to the source device within the network; refining the path according to administrative constraints; and establishing the path as the initial route in order to find an alternative route with sufficient quality of service characteristics in the vent of a network failure

(Office Action, pp. 12-13). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

Moreover, the Examiner does not explain why determining a short path, refining the path, and establishing the path as the initial route would allow for the finding of an alternative route with sufficient quality of service characteristics in the event of a network failure. Appellants submit that the Examiner's purported motivation to combine the cited references is merely

conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 9 under 35 U.S.C. § 103(a) based Haskin et al., Hsing et al., and Saleh is improper. Accordingly, Appellants request that the rejection be reversed.

2. Claim 10.

Claim 10 depends from claim 9. Therefore, claim 10 is patentable over Haskin et al., Hsing et al., and Saleh, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 9. Moreover, this claim is patentable over Haskin et al., Hsing et al., and Saleh for reasons of its own.

Claim 10 recites that refining a short path comprises rejecting a path exceeding bandwidth allocation and hop limit. The Examiner appears to admit that Haskin et al. and Hsing et al. do not disclose this feature (Office Action, p. 13). The Examiner relies on col. 27, lines 1-30, of Saleh for allegedly disclosing the above feature of claim 10 (Office Action, p. 13). Appellants respectfully disagree with the Examiner's interpretation of Saleh.

Col. 27, lines 1-30, of Saleh is reproduced above. This section of Saleh discloses the use of a QoS-based shortest-path first (QSPF) technique for computing a path that relies on configured metrics and an up-to-date view of network topology. This section of Saleh also provides two tables that identify configured virtual paths (VPs) and initial paths, respectively. This section of Saleh does not disclose or suggest that refining a short path comprises rejecting a path exceeding bandwidth allocation and hop limit, as recited in claim 10. In fact, this section of Saleh does not even mention rejecting a path.

Even assuming, for the sake of argument, that that the above section of Saleh can

reasonably be construed to disclose that refining a short path comprises rejecting a path exceeding bandwidth allocation and hop limit (a point that Appellants do not concede), Appellants submit that one skilled in the art at the time of Appellants' invention would not have been motivated to incorporate this alleged teaching of Saleh into the Haskin et al. and Hsing et al. systems, absent impermissible hindsight. The Examiner does not explain why one skilled in the art at the time of Appellants' invention would have been motivated to incorporate this alleged feature of Saleh into the Haskin et al. and Hsing et al. system. As such, a *prima facie* case of obviousness has not been established with respect to claim 10.

For at least the foregoing reasons, Appellants submit that the rejection of claim 10 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Saleh is improper. Accordingly, Appellants request that the rejection of claim 10 be reversed.

3. Claim 11.

Claim 11 depends from claim 8. The disclosure of Saleh does not remedy the deficiencies in the disclosures of Haskin et al. and Hsing et al. set forth above with respect to claim 8. Therefore, claim 11 is patentable over Haskin et al., Hsing et al., and Saleh, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8. Moreover, this claim is patentable over Haskin et al., Hsing et al., and Saleh for reasons of its own.

Claim 11 recites that the determining the alternative route comprises determining a shortest route from a node preceding the failed element to the destination device within the network; refining the route to exclude the failed element on the initial route; and establishing the alternative route for forwarding packets. Haskin et al., Hsing et al., and Saleh, whether taken

alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, Haskin et al., Hsing et al., and Saleh do not disclose or suggest refining a determined shortest route to exclude the failed element on the initial route. The Examiner relies on col. 2, lines 38-40, of Haskin et al. for allegedly disclosing this feature (Office Action, p. 13). Appellants respectfully disagree with the Examiner's interpretation of Haskin et al.

At col. 2, lines 28-50, Haskin et al. discloses:

> In summary, however, from one of its important aspects, the invention embraces in a label-switched data packet forwarding network comprising a predetermined primary routing path for unidirectional packet flow traffic along successively linked switching entities defining such primary path in the direction between a source ingress end switch and a destination egress end switch, a method of protecting said primary path from a failure or congestion in the path, that comprises, setting up an alternative label switched path segment between said source ingress and destination egress end switches of the primary path, separate from the primary path and sharing no link or switching entity of the primary path apart from the ingress and egress end switches, and between which the alternative label switched path segment is externally connected, and, upon the occurrence of a failure or congestion between switching entities of the protected primary path, reversing the packet flow traffic in the primary path back in the opposite direction towards the source ingress switch as an initial reverse alternate path segment, and thence along said external alternate label switched path segment to the egress switch, thereby rerouting the packet flow traffic around the primary path through said external alternative label switched path segment.

This section of Haskin et al. discloses setting up an alternative label switched path segment between source ingress and destination egress end switches of a primary path that is separate from the primary path and sharing no link or switching entity of the primary path apart from the ingress and egress end switches. This section of Haskin et al. is unrelated to refining a determined path. Thus, this section of Haskin et al. cannot disclose or suggest that the determining the alternative route comprises refining a determined shortest route to exclude the failed element on the initial route as recited in claim 11.

The disclosures of Hsing et al. and Saleh do not remedy the above deficiencies in the disclosure of Haskin et al.

The Examiner relies on Saleh for allegedly disclosing determining a shortest route from a node preceding the failed element to the destination device within the network and establishing the alternative route for forwarding packets. With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (Haskin – Hsing) with the teaching of Saleh to determine a shortest route from a node preceding the failed element to the destination device within the network in order to find an alternative route with sufficient quality of service characteristics in the vent of a network failure

(Office Action, p. 13). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 11 under 35 U.S.C. § 103(a) based Haskin et al., Hsing et al., and Saleh is improper. Accordingly, Appellants request that the rejection be reversed.

4. Claim 12.

Claim 12 depends from claim 8. The disclosure of Saleh does not remedy the

deficiencies in the disclosures of Haskin et al. and Hsing et al. set forth above with respect to claim 8. Therefore, claim 12 is patentable over Haskin et al., Hsing et al., and Saleh, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8.

F. The rejection of claims 13 and 17 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Hahne et al. should be reversed.

1. Claim 13.

Claim 13 depends from claim 8. The disclosure of Hahne et al. does not remedy the deficiencies in the disclosures of Haskin et al. and Hsing et al. set forth above with respect to claim 8. Therefore, claim 13 is patentable over Haskin et al., Hsing et al., and Hahne et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8. Moreover, this claim is patentable over Haskin et al., Hsing et al., and Hahne et al. for reasons of its own.

Claim 13 recites that determining the alternative route comprises reserving bandwidth available on the initial route; generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element; and establishing the alternative route. The Examiner admits that Haskin et al. and Hsing et al. do not disclose these features (Office Action, p. 14). The Examiner appears to rely on col. 7, lines 37-59, and specifically relies on col. 11, lines 58-65, of Hahne et al. for allegedly disclosing these features (Office Action, p. 14). Appellants respectfully disagree with the Examiner's interpretation of Hahne et al.

At the outset, Appellants submit that the rejection of claim 13 under 35 U.S.C. § 103(a)

based on Haskin et al., Hsing et al., and Hahne et al. is improper. Appellants' application has an effective filing date of July 15, 1999. The filing date of Hahne et al. is October 15, 1999, which is after Appellants' filing date. Appellants note that Hahne et al. claims priority to Provisional Patent Application No. 60/123,434, filed on March 9, 1999. However, Appellants have reviewed Provisional Patent Application No. 60/123,434 and submit that Provisional Patent Application No. 60/123,434 does not provide support for the information disclosed in col. 11, lines 58-65, of Hahne et al. Thus, col. 11, lines 58-65, of Hahne et al. cannot be used in a rejection of Appellants' claim 13 since the filing date of Hahne et al. is after Appellants' effective filing date. Thus, the Examiner's rejection of claim 13 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Hahne et al. is improper.

> Nevertheless, at col. 7, lines 37-59, Hahne et al. discloses:
>
> When multiple reserved paths are being set-up in the network, a reservation aggregation operation may need to be performed by the border routers R in a step 120. For example, suppose that a reservation having bandwidth $BW_{1,3}$ has already been established between S_1 and S_3 in FIG. 4, and assume that S_2 now desires to set-up an additional reservation from S_2 to S_3 having bandwidth $BW_{2,3}$. After the probing process from S_2 to S_3 is performed, S_3 launches a GRAFT message 16_2 back toward S_2. Let us consider bandwidth reservations on link 22, which is the communication channel between adjacent routers R_4 and R_5. When router R_5 receives the GRAFT message, R_5 recognizes that a bandwidth reservation already exists on the link 22 for the sink S_3. Rather than creating a new reservation on the link 22, R_5 triggers the intra-domain protocols to modify the existing reservation to R_4. This process is known as reservation aggregation. Consequently, the resulting aggregate reserved bandwidth on the link 22 between R_4 and R_5 becomes $BW_{1,3} + BW_{2,3}$. Furthermore, the reservation is similarly established or modified in the other border routers R_3, R_2 and the source border router S_2. The additional reservation is established when the GRAFT message arrives at S_2.

This section of Hahne et al. discloses that a reservation having bandwidth $BW_{1,3}$ is established between switches S_1 and S_3 in FIG. 4, and that switch S_2 can set-up an additional reservation from switch S_2 to switch S_3 having bandwidth $BW_{2,3}$. This section of Hahne et al. is unrelated to

refining a generated alternative route. Thus, this section of Hahne et al. cannot disclose or suggest that determining the alternative route comprises reserving bandwidth available on the initial route; generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element; and establishing the alternative route, as recited in claim 13.

At col. 11, lines 58-65 (which corresponds to Hahne et al.'s claim 7), Hahne et al. discloses:

> f) detecting any failed routers in the established communication paths; and g) if any failed routers are detected in the step f): h) discovering alternate partial communication paths including alternate routers for by-passing the respective failed routers; and i) establishing alternate reservation bandwidths on the alternate paths.

As set forth above, this section of Hahne et al. is not supported by Provisional Patent Application No. 60/123,434, and thus, cannot be relied on in rejecting Appellants' claim 13. Nevertheless, this section of Hahne et al. discloses how an alternative route can be established. This section of Hahne et al. is unrelated to refining a generated alternative route. Thus, this section of Hahne et al. cannot disclose or suggest that determining the alternative route comprises reserving bandwidth available on the initial route; generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element; and establishing the alternative route, as recited in claim 13.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (McAllister – Saleh) with the teaching of Hahne to identifying a plurality of nodes associated with the failed element according to network configuration information; generating the alternative route excluding the failed element and the plurality of nodes; and establishing the alternative route in order to rerouting of labeled data packet upon failure or congestion in the primary path

(Office Action, p. 15). Appellants submit that the Examiner's motivation does not address the appropriate references (Appellants note that McAllister et al. and Saleh are not relied on in the rejection of claim 13) or the features recited in claim 13 (the features identified in the Examiner's motivation statement appear to correspond to claim 17 and not claim 13). Appellants submit that the Examiner's motivation is not sufficient for establishing a *prima facie* case of obviousness.

Moreover, Appellants submit that the Examiner's motivation (i.e., that the teachings of Hahne et al. would allow for rerouting of labeled data packet upon failure or congestion in the primary path) is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 13 under 35 U.S.C. § 103(a) based Haskin et al., Hsing et al., and Hahne et al. is improper. Accordingly, Appellants request that the rejection be reversed.

2. Claim 17.

Claim 17 depends from claim 8. The disclosure of Hahne et al. does not remedy the deficiencies in the disclosures of Haskin et al. and Hsing et al. set forth above with respect to

claim 8. Therefore, claim 17 is patentable over Haskin et al., Hsing et al., and Hahne et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8. Moreover, this claim is patentable over Haskin et al., Hsing et al., and Hahne et al. for reasons of its own.

Claim 17 recites that determining the alternative route comprises reserving bandwidth available on the initial route; identifying a plurality of nodes associated with the failed element according to network configuration information; generating the alternative route excluding the failed element and the plurality of nodes; and establishing the alternative route. The Examiner admits that Haskin et al. and Hsing et al. do not disclose these features (Office Action, p. 15). The Examiner appears to rely on col. 7, lines 37-59, and specifically relies on col. 11, lines 58-65, of Hahne et al. for allegedly disclosing "reserving bandwidth available on the initial route; generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element; and establishing the alternative route" (Office Action, p. 15). Appellants respectfully disagree with the Examiner's interpretation of the disclosure of Hahne et al.

At the outset, Appellants submit that the Examiner's allegations do not address the specifically-recited features of claim 17. That is, claim 17 does not recite reserving bandwidth available on the initial route; generating the alternative route by invoking a routing protocol; refining the alternative route by excluding the failed element; and establishing the alternative route. Instead, claim 17 specifically recite that determining the alternative route comprises reserving bandwidth available on the initial route; identifying a plurality of nodes associated with the failed element according to network configuration information; generating the alternative

route excluding the failed element and the plurality of nodes; and establishing the alternative route. The Examiner does not address these features. Thus, a *prima facie* case of obviousness has not been established with respect to claim 17.

Moreover, Appellants submit that the rejection of claim 17 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Hahne et al. is improper. Appellants' application has an effective filing date of July 15, 1999. The filing date of Hahne et al. is October 15, 1999, which is after Appellants' filing date. Appellants note that Hahne et al. claims priority to Provisional Patent Application No. 60/123,434, filed on March 9, 1999. However, Appellants have reviewed Provisional Patent Application No. 60/123,434 and submit that Provisional Patent Application No. 60/123,434 does not provide to support for the information disclosed in col. 11, lines 58-65, of Hahne et al. Thus, col. 11, lines 58-65, of Hahne et al. cannot be used in a rejection of Appellants' claim 17 since the filing date of Hahne et al. is after Appellants' effective filing date. Thus, the Examiner's rejection of claim 17 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Hahne et al. is improper.

Nevertheless, col. 7, lines 37-59, of Hahne et al. is reproduced above. This section of Hahne et al. discloses that a reservation having bandwidth $BW_{1,3}$ is established between switches S_1 and S_3 in FIG. 4, and that switch S_2 can set-up an additional reservation from switch S_2 to switch S_3 having bandwidth $BW_{2,3}$. This section of Hahne et al. is unrelated to identifying a plurality of nodes associated with a failed element according to network configuration information. Thus, this section of Hahne et al. cannot disclose or suggest that determining the alternative route comprises reserving bandwidth available on the initial route; identifying a plurality of nodes associated with the failed element according to network configuration

information; generating the alternative route excluding the failed element and the plurality of nodes; and establishing the alternative route, as recited in claim 17.

Col. 11, lines 58-65, of Hahne et al. is reproduced above. As set forth above, this section of Hahne et al. is not supported by Provisional Patent Application No. 60/123,434, and thus, cannot be relied on in rejecting Appellants' claim 17. Nevertheless, this section of Hahne et al. discloses how an alternative route can be established. This section of Hahne et al. is unrelated to identifying a plurality of nodes associated with a failed element according to network configuration information. Thus, this section of Hahne et al. cannot disclose or suggest that determining the alternative route comprises reserving bandwidth available on the initial route; identifying a plurality of nodes associated with the failed element according to network configuration information; generating the alternative route excluding the failed element and the plurality of nodes; and establishing the alternative route, as recited in claim 17.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (McAllister – Saleh) with the teaching of Hahne to identifying a plurality of nodes associated with the failed node according to network configuration information; generating the alternative route excluding the failed node and the plurality of nodes; and establishing the alternative route in order to rerouting of labeled data packet upon failure or congestion in the primary path

(Office Action, p. 16). Appellants submit that the Examiner's motivation does not address the appropriate references (Appellants note that McAllister et al. and Saleh are not relied on in the rejection of claim 13). As such, Appellants submit that the Examiner's motivation is not sufficient for establishing a *prima facie* case of obviousness.

Moreover, Appellants submit that the Examiner's motivation (i.e., that the teachings of Hahne would allow for rerouting of labeled data packet upon failure or congestion in the primary

path) is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 17 under 35 U.S.C. § 103(a) based Haskin et al., Hsing et al., and Hahne et al. is improper. Accordingly, Appellants request that the rejection be reversed.

G. The rejection of claims 15 and 16 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Vikberg et al. should be reversed.

1. Claim 15.

Claim 15 depends from claim 8. The disclosure of Vikberg et al. does not remedy the deficiencies in the disclosures of Haskin et al. and Hsing et al. set forth above with respect to claim 8. Therefore, claim 15 is patentable over Haskin et al., Hsing et al., and Vikberg et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8. Moreover, this claim is patentable over Haskin et al., Hsing et al., and Vikberg et al. for reasons of its own

Claim 15 recites that the determining an alternative route includes checking bandwidth

allocation. The Examiner admits that Haskin et al. and Hsing et al. do not disclose this feature (Office Action, p. 16). The Examiner relies on Fig. 15 of Vikberg et al. for disclosing this feature (Office Action, p. 16). Appellants respectfully disagree with the Examiner's interpretation of the disclosure of Vikberg et al.

At the outset, Appellants submit that the rejection of claim 15 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Vikberg et al. is improper. Appellants' application has an effective filing date of July 15, 1999. The filing date of Vikberg et al. is September 30, 2002, which is after Appellants' filing date. Appellants note that Vikberg et al. is a continuation-in-part of U.S. Patent Application No. 09/866,135, filed on May 25, 2001, which is a continuation of U.S. Patent Application No. 09/353.135, filed on July 14, 1999. Appellants have reviewed the disclosure of U.S. Patent Application No. 09/353,135, which has issued as U.S. Patent No. 6,775,266, and submit that U.S. Patent No. 6,775,266 does not provide to support for Fig. 15 and its corresponding description of Vikberg et al. Thus, Fig. 15 of Vikberg et al. cannot be used in a rejection of Appellants' claim 15 since the filing date of Vikberg et al. is after Appellants' effective filing date. Thus, the Examiner's rejection of claim 15 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Vikberg et al. is improper.

Nevertheless, Vikberg et al.'s Fig. 15 depicts call processing in which available bandwidth is checked to see if the call can be established along a primary route. This figure of Vikberg et al. in no way discloses or suggests determining an alternative route that includes checking bandwidth allocation, as recited in claim 15.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (Haskin – Hsing) with the teaching of Vikberg to determine bandwidth allocation comprises check

> bandwidth allocation in order to monitor congestion in the network and to allocate bandwidth more efficiently

(Office Action, p. 17). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 15 under 35 U.S.C. § 103(a) based Haskin et al., Hsing et al., and Vikberg is improper. Accordingly, Appellants request that the rejection be reversed.

2. Claim 16.

Claim 16 depends from claim 15. Therefore, claim 16 is patentable over Haskin et al., Hsing et al., and Vikberg et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 15. Moreover, this claim is patentable over Haskin et al., Hsing et al., and Vikberg et al. for reasons of its own

Claim 16 recites that the checking bandwidth allocation includes dynamically balancing capacity of nodes and links. The Examiner appears to admit that Haskin et al. and Hsing et al. do not disclose this feature (Office Action, p. 17). The Examiner relies on Fig. 17 of Vikberg et al. for disclosing this feature (Office Action, p. 17). Appellants respectfully disagree with the

Examiner's interpretation of Vikberg et al.

At the outset, Appellants submit that the rejection of claim 16 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Vikberg et al. is improper. Appellants' application has an effective filing date of July 15, 1999. The filing date of Vikberg et al. is September 30, 2002, which is after Appellants' filing date. Appellants note that Vikberg et al. is a continuation-in-part of U.S. Patent Application No. 09/866,135, filed on May 25, 2001, which is a continuation of U.S. Patent Application No. 09/353.135, filed on July 14, 1999. Appellants have reviewed the disclosure of U.S. Patent Application No. 09/353,135, which has issued as U.S. Patent No. 6,775,266, and submit that U.S. Patent No. 6,775,266 does not provide to support for Fig. 17 and its corresponding description of Vikberg et al. Thus, Fig. 17 of Vikberg et al. cannot be used in a rejection of Appellants' claim 16 since the filing date of Vikberg et al. is after Appellants' effective filing date. Thus, the Examiner's rejection of claim 16 under 35 U.S.C. § 103(a) based on Haskin et al., Hsing et al., and Vikberg et al. is improper.

Nevertheless, Vikberg et al.'s Fig. 17 depicts call processing in which an optimum route for a call is determined. This figure of Vikberg et al. in no way discloses or suggests that the checking bandwidth allocation includes dynamically balancing capacity of nodes and links, as recited in claim 16.

The Examiner does not provide any motivation as to why one skilled in the art at the time of Appellants' invention would have been motivated to incorporate this feature into the Hankin et al. and Hsing et al. systems. Accordingly, a *prima facie* case of obviousness has not been established with respect to claim 16.

For at least the foregoing reasons, Appellants submit that the rejection of claim 16 under

35 U.S.C. § 103(a) based Haskin et al., Hsing et al., and Vikberg is improper. Accordingly, Appellants request that the rejection be reversed.

H. The rejection of claim 14 under 35 U.S.C. § 103(a) based on Haskin et al. and Saleh should be reversed.

1. Claim 14.

Independent claim 14 is directed to a method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links. The method includes determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic; determining an alternative route; forwarding packets on the initial route; detecting a failed element; and automatically forwarding packets on the alternative route without communicating with either the source or the destination. Haskin et al. and Saleh, whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, Haskin et al. and Saleh do not disclose or suggest determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic. The Examiner admits that Haskin et al. does not disclose these features (Office Action, p. 18). The Examiner relies on col. 2, lines 65-67, and col. 27, lines 1-30, of Saleh for allegedly disclosing the above features of claim 14 (Office Action, pp. 18-19).

Appellants respectfully disagree with the Examiner's interpretation of Saleh.

> At col. 2, lines 64-67, Saleh discloses:
>
> In turn, a method for finding an alternate route with sufficient quality-of-service characteristics in the event of a network failure that is fast and efficient must be provided to enable such quick restoration.

This section of Saleh discloses a desire to find an alternate route with sufficient QoS characteristics in the event of a network failure. This section of Saleh does not disclose or suggest determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic, as recited in claim 14. In fact, this section of Saleh does not even mention refining a path.

Col. 27, lines 1-30, of Saleh is reproduced above. This section of Saleh discloses the use of a QoS-based shortest-path first (QSPF) technique for computing a path that relies on configured metrics and an up-to-date view of network topology. This section of Saleh also provides two tables that identify configured virtual paths (VPs) and initial paths, respectively. This section of Saleh does not disclose or suggest determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic, as recited in claim 14. In fact, this section of Saleh does not even mention refining a path.

> With respect to motivation, the Examiner alleges:
>
> it would have been obvious … to modify the system of Haskin with the teaching of Saleh to provide determining an initial route by determining a short path from

> the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic in order to select routing paths through networks

(Office Action, p. 19). Appellants submit that Haskin et al. already discloses selecting routing paths through networks (see, for example, col. 4, lines 46-51). Thus, it is unclear how the Examiner can reasonably allege that incorporating the above features of claim 14 into the Haskin et al. system would cause the Haskin et al. system to perform a function that the Haskin et al. system already performs.

Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 14 under 35 U.S.C. § 103(a) based on Haskin et al. and Saleh is improper. Accordingly, Appellants request that the rejection of claim 14 be reversed.

I. The rejection of claim 18 under 35 U.S.C. § 103(a) based on McAllister et al. and Saleh should be reversed.

1. Claim 18.

Independent claim 18 is directed to a method for locally rerouting packets traveling on an established route when a node in a network of interconnected nodes fails. The method includes computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route; storing, at each of the select intermediary nodes, the alternative route; determining locally that the established route has failed; and automatically forwarding packets on the alternative route. McAllister et al. and Saleh, whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, McAllister et al. and Saleh do not disclose or suggest computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route. The Examiner admits that McAllister et al. does not disclose this feature (Office Action, p. 20). The Examiner relies on col. 2, lines 65-67, and col. 27, lines 1-30, of Saleh for allegedly disclosing the above features of claim 18 (Office Action, p. 20). Appellants respectfully disagree with the Examiner's interpretation of the disclosure of Saleh.

Col. 2, lines 64-67, of Saleh is reproduced above. This section of Saleh discloses a desire to find an alternate route with sufficient QoS characteristics in the event of a network failure. This section of Saleh does not disclose or suggest computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route, as recited in claim 18.

Col. 27, lines 1-30, of Saleh is reproduced above. This section of Saleh discloses the use of a QoS-based shortest-path first (QSPF) technique for computing a path that relies on configured metrics and an up-to-date view of network topology. This section of Saleh also provides two tables that identify configured virtual paths (VPs) and initial paths, respectively. This section of Saleh does not disclose or suggest computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route, as recited in claim 18.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the system of McAllister with the teaching of Saleh to compute, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route in order to select routing paths through networks

(Office Action, pp. 20-21). Appellants submit that McAllister et al. already discloses selecting routing paths through networks (see, for example, col. 3, lines 20-22). Thus, it is unclear how the Examiner can reasonably allege that incorporating the above feature of claim 18 into the McAllister et al. system would cause the McAllister et al. system to perform a function that the McAllister et al. system already performs.

Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be

some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

McAllister et al. and Saleh do not further disclose or suggest storing, at each of the select intermediary nodes (which computed the alternative route), the alternative route, as also recited in claim 18. The Examiner relies on col. 2, lines 30-34 and 38-45, col. 3, lines 11-17 and 20-24, and col. 4, lines 6-12, of McAllister et al. for allegedly disclosing the above feature of claim 18 (Office Action, p. 20). Appellants submit that since the Examiner admits that McAllister et al. does not disclose computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route, McAllister et al. cannot reasonably be relied on for disclosing storing, at each of the select intermediary nodes (i.e., the select intermediary nodes that computed an alternative route), the alternative route, as recited in claim 18.

For at least the foregoing reasons, Appellants submit that the rejection of claim 18 under 35 U.S.C. § 103(a) based on McAllister et al. and Saleh is improper. Accordingly, Appellants request that the rejection of claim 18 be reversed.

J. The rejection of claim 19 under 35 U.S.C. § 103(a) based on McAllister et al., Saleh, and Hahne et al. should be reversed.

1. Claim 19.

Claim 19 depends from claim 18. The disclosure of Hahne et al. does not remedy the deficiencies in the disclosures of McAllister et al. and Saleh set forth above with respect to claim 18. Therefore, claim 19 is patentable over McAllister et al., Saleh, and Hahne et al., whether

taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 18. Moreover, this claim is patentable over McAllister et al., Saleh, and Hahne et al. for reasons of its own.

Claim 19 recites that computing the alternative route comprises reserving bandwidth available on the established route; identifying a plurality of nodes associated with the failed node according to network configuration information; generating the alternative route excluding the failed node and the plurality of nodes; and establishing the alternative route. McAllister et al., Saleh, and Hahne et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, McAllister et al., Saleh, and Hahne et al. do not disclose or suggest identifying a plurality of nodes associated with the failed node according to network configuration information and generating the alternative route excluding the failed node and the plurality of nodes. The Examiner admits that McAllister et al. and Saleh do not disclose these features (Office Action, p. 21). The Examiner relies on col. 11, lines 58-65, of Hahne et al. for allegedly disclosing these features (Office Action, pp. 21-22). Appellants respectfully disagree with the Examiner's interpretation of Hahne et al.

At the outset, Appellants submit that the rejection of claim 19 under 35 U.S.C. § 103(a) based on McAllister et al., Saleh, and Hahne et al. is improper. Appellants' application has an effective filing date of July 15, 1999. The filing date of Hahne et al. is October 15, 1999, which is after Appellants' filing date. Appellants note that Hahne et al. claims priority to Provisional Patent Application No. 60/123,434, filed on March 9, 1999. However, Appellants have reviewed Provisional Patent Application No. 60/123,434 and submit that Provisional Patent Application

No. 60/123,434 does not provide to support for the information disclosed in col. 11, lines 58-65, of Hahne et al. Thus, col. 11, lines 58-65, of Hahne et al. cannot be used in a rejection of Appellants' claim 19 since the filing date of Hahne et al. is after Appellants' effective filing date. Thus, the Examiner's rejection of claim 19 under 35 U.S.C. § 103(a) based on McAllister et al., Saleh, and Hahne et al. is improper.

Nevertheless, col. 11, lines 58-65 (which corresponds to Hahne et al.'s claim 7), of Hahne et al. is reproduced above. This section of Hahne et al. discloses how an alternative route can be established. This section of Hahne et al. does not disclose or suggest identifying a plurality of nodes associated with the failed node according to network configuration information and generating the alternative route excluding the failed node and the plurality of nodes, as recited in claim 19.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (McAllister – Saleh) with the teaching of Hahne to identifying a plurality of nodes associated with the failed node according to network configuration information; generating the alternative route excluding the failed node and the plurality of nodes; and establishing the alternative route in order to rerouting of labeled data packet upon failure or congestion in the primary path

(Office Action, p. 22). Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal

conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 19 under 35 U.S.C. § 103(a) based McAllister et al., Saleh, and Hahne et al. is improper. Accordingly, Appellants request that the rejection be reversed.

K. The rejection of claim 20 under 35 U.S.C. § 103(a) based on McAllister et al., Saleh, Hahne et al., and Azuma et al. should be reversed.

1. Claim 20.

Claim 20 depends from claim 19. The disclosure of Azuma et al. does not remedy the deficiencies in the disclosures of McAllister et al., Saleh, and Hahne et al. set forth above with respect to claim 19. Therefore, claim 20 is patentable over McAllister et al., Saleh, Hahne et al., and Azuma et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 19. Moreover, this claim is patentable over McAllister et al., Saleh, Hahne et al., and Azuma et al. for reasons of its own.

Claim 20 recites that computing the alternative route further comprises locating a set of established routes with a same destination device and same administrative constraints as the established route; finding a common node, downstream from the failed node, after which the set of established routes and the established route utilize the same network elements; establishing a new route from the common node to the destination device; and incorporating the new route into the alternative route. McAllister et al., Saleh, Hahne et al., and Azuma et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, McAllister et al., Saleh, Hahne et al., and Azuma et al. do not disclose or

suggest finding a common node, downstream from the failed node, after which the set of established routes and the established route utilize the same network elements; establishing a new route from the common node to the destination device; and incorporating the new route into the alternative route. The Examiner admits that McAllister et al., Saleh, and Hahne et al. do not disclose these features (Office Action, p. 23). The Examiner relies on col. 4, lines 51-55, of Azuma et al. for allegedly disclosing these features (Office Action, p. 23). Appellants respectfully disagree with the Examiner's interpretation of Azuma et al.

At col. 4, lines 51-56, Azuma et al. discloses:

> A description will now be given of the computation phase. The node that receives the alarm message executes computation (topology computation) for finding alternate paths using the topology information common to the nodes and stored in the physical topology table and the logical topology table.

This section of Azuma et al. discloses that a node that receives an alarm message finds alternate paths using topology information common to the nodes. This section of Azuma et al. does not disclose or suggest finding a common node, downstream from the failed node, after which the set of established routes and the established route utilize the same network elements; establishing a new route from the common node to the destination device; and incorporating the new route into the alternative route, as recited in claim 20. In fact, this section of Azuma et al. merely discloses the use of topology information for finding alternate paths.

With respect to motivation, the Examiner alleges:

> it would have been obvious … to modify the combined system (McAllister – Saleh - Hahne) with the teaching of Azuma to find a common node, downstream from the failed node, after which the set of established routes and the established route utilize the same network elements; establishing a new route from the common node to the destination device; and incorporating the new route into the alternative route in order to determine alternate path for bypassing the failed elements

(Office Action, pp. 23-24). Appellants submit that the McAllister et al. system already discloses determining alternate paths around failed elements (see, for example, Abstract). Thus, it is unclear how the Examiner can reasonably allege that incorporating the above feature of claim 20 into the McAllister et al. system would cause the McAllister et al. system to perform a function that the McAllister et al. system already performs.

Appellants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Appellants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. _____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. Appellants submit that the Examiner's purported motivation to combine the cited references is merely conclusory and based on impermissible hindsight.

For at least the foregoing reasons, Appellants submit that the rejection of claim 20 under 35 U.S.C. § 103(a) based McAllister et al., Saleh, Hahne et al., and Azuma et al. is improper. Accordingly, Appellants request that the rejection be reversed.

L. The rejection of claim 21 under 35 U.S.C. § 103(a) based on McAllister et al., Saleh, and Hsing et al. should be reversed.

1. Claim 21.

Claim 21 depends from claim 18. The disclosure of Hsing et al. does not remedy the

deficiencies in the disclosures of McAllister et al. and Saleh set forth above with respect to claim 18. Therefore, claim 21 is patentable over McAllister et al., Saleh, and Hsing et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 18.

VIII. CONCLUSION

In view of the foregoing arguments, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejections of claims 1-4, 6, 8-21, and 24 under 35 U.S.C. § 103.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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IX. CLAIM APPENDIX

1. A network for forwarding packets from a source device to a destination device, said network including a plurality of network elements including a plurality of nodes and connecting links, the plurality of nodes including at least one alternative-route-enabled node and at least one non-alternative-route-enabled node, wherein the at least one non-alternative-route-enabled node comprises:

a storage space to store an initial route from the source device to the destination device;

a mechanism to detect failure in a downstream network element in the initial route; and

a forwarder to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node, the failure message causing the alternative-route-enabled node to begin forwarding packets on an alternative route.

2. The node in claim 1, wherein the network is a connection-oriented network with a plurality of established initial routes.

3. The node in claim 2, wherein the plurality of nodes includes a label-switched router.

4. The node in claim 1, wherein the alternative route does not include the

downstream network element in the initial route.

6. The node in claim 1, wherein the mechanism to detect failure sends communication packets to downstream nodes at regular intervals.

8. A method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links, comprising:

determining an initial route, the initial route including at least one alternative-route enabled node and at least one non-alternative-route-enabled node, the at least one alternative-route-enabled node and the at least one non-alternative-route-enabled node storing an initial route from the source device to the destination device;

determining an alternative route by identifying the at least one alternative-route-enabled node in the initial route, identifying downstream interconnected elements, and generating the alternative route based on the identified at least one alternative-route-enabled node and the identified downstream interconnected elements;

forwarding packets on the initial route;

detecting a failed element; and

automatically forwarding packets on the alternative route without communicating with either the source or the destination.

9. The method of claim 8, wherein determining the initial route further comprises:

determining a short path from the destination device to the source device within

the network;

refining the path according to administrative constraints; and

establishing the path as the initial route.

10. The method of claim 9, wherein refining the path comprises rejecting the path exceeding bandwidth allocation and hop limit.

11. The method of claim 8, wherein determining the alternative route further comprises:

determining a shortest route from a node preceding the failed element to the destination device within the network;

refining the route to exclude the failed element on the initial route; and

establishing the alternative route for forwarding packets.

12. The method of claim 8, wherein detecting a failure is conducted locally by a node preceding the failed element without requiring notification of a master server or an ingress node.

13. The method of claim 8, wherein determining the alternative route comprises:

reserving bandwidth available on the initial route;

generating the alternative route by invoking a routing protocol;

refining the alternative route by excluding the failed element; and

establishing the alternative route.

14. A method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links, comprising:

determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic;

determining an alternative route;

forwarding packets on the initial route;

detecting a failed element; and

automatically forwarding packets on the alternative route without communicating with either the source or the destination.

15. The method of claim 8, wherein the determining the alternative route comprises checking bandwidth allocation.

16. The method of claim 15, wherein checking bandwidth allocation comprises dynamically balancing capacity of nodes and links.

17. The method of claim 8, wherein determining the alternative route comprises:

reserving bandwidth available on the initial route;

identifying a plurality of nodes associated with the failed element according to

network configuration information;

generating the alternative route excluding the failed element and the plurality of nodes;

establishing the alternative route.

18. A method for locally rerouting packets traveling on an established route when a node in a network of interconnected nodes fails, the method comprising:

computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route;

storing, at each of the select intermediary nodes, the alternative route;

determining locally that the established route has failed; and

automatically forwarding packets on the alternative route.

19. The method of claim 18, wherein computing the alternative route comprises:

reserving bandwidth available on the established route;

identifying a plurality of nodes associated with the failed node according to network configuration information;

generating the alternative route excluding the failed node and the plurality of nodes; and

establishing the alternative route.

20. The method of claim 19, wherein computing the alternative route further

comprises:

locating a set of established routes with a same destination device and same administrative constraints as the established route;

finding a common node, downstream from the failed node, after which the set of established routes and the established route utilize the same network elements;

establishing a new route from the common node to the destination device; and

incorporating the new route into the alternative route.

21. The method of claim 18, wherein determining locally that the established route has failed is conducted by a signaling protocol.

24. A network for forwarding packets from a source device to a destination device and including a plurality of intermediate network nodes, the plurality of intermediate network nodes comprising:

at least one first node configured to:

store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device,

detect a failure in a downstream network node in the initial route, and

automatically forward a packet to a node on one of the at least one alternative route in response to detecting the failure; and

at least one second node configured to:

store the initial route,

detect a failure in a downstream network node in the initial route, and

forward a failure message to an upstream first node in response to detecting the failure, the failure message causing the upstream first node to automatically forward a packet to a node on one of the at least one alternative route.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.